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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,343

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Tadahiro Ohmi

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GRIFFIN & SZIPL, PC
SUITE PH-1
2300 NINTH STREET, SOUTH
ARLINGTON, VA 22204

EXAMINER

MCCALISTER, WILLIAM M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,343	Applicant(s) OHMI ET AL.	
	Examiner WILLIAM MCCALISTER	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10-12 and 15-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/22/09, 3/17/09, 3/17/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 8 and 9 are cancelled. Claims 4-7, 13 and 14 are withdrawn from consideration.
Claims 1-3, 10-12 and 15-19 are pending for immediate consideration.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-12 and 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a) Claims 18 and 19 are indefinite because they do not set forth what is required of the step operating pressure (Ps'). Specifically, it is unclear from the claims how Ps' is generated and how it is used. It appears to be an intermediary value with no purpose that is distinct from the other parameters of the claim.

The claims say that "Ps' ... is determined... so that the actuator type operating valve is made to open based on control signal Sc...". However, the claim does not clearly recite a link between Ps' and Sc, and it is therefore unclear whether the claim requires that Ps' be used to manipulate signal Sc. (Figure 15 shows that Ps' functions as an upper bound on Pa1, where Pa1 is determined by Sc, and thereby implies that Ps' is used to derive Sc.)

In the Remarks filed 3/17/2009 (p. 15), Applicant addressed this rejection.

On the one hand, Applicant quotes the specification to explain that “with respect to the tuning box (19), ‘optimal values’ for the step operating pressure Ps’ of the actuator operating pressure Pa ... are computed. Thus, the control signal Sc may be outputted to the electro-pneumatic conversion device...” (Examiner’s underline). This statement appears to confirm the Examiner’s interpretation of FIG 15, that Ps’ is used to calculate Sc, which in turn produces Pa.

Applicant goes on to state that Ps (importantly, not Ps’) “is not used to control the control signal Sc”, and then, in seeming contradiction to the quote from the specification, concludes “[t]hus, a person of ordinary skill would realize that the step operating pressure Ps’ is not used to determine Sc” (Examiner’s underline). No explanation has been given regarding the relevance that Ps (not Ps’) has in reaching this conclusion, given the quoted passage of the specification.

b) The independent claims should clarify that the type of driving input produced in step (b) will dictate which type of driving input can be produced in step (d), so as to further open (rather than close) the valve.

c) Also, how can a something move toward a *direction*, as required of the independent claims? (Motion occurs toward a location or a position.)

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 2 and 3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 20, 26 and 27, respectively, of copending Application No. 11/762,987 in view of Burns (US 5,970,430).

The cited claims of the co-pending application, as most recently amended, are identical to the cited claims as currently amended of the immediate application, with exception to the characteristics specific to stepped opening, rather than stepped closing of the valve. Burns teaches that it was known to use such a stepped process to open a valve (see col. 28 lines 9-24). It would have been obvious to one of skill in the art at the time of invention to perform the method claimed in the co-pending application to diagnose the opening of a valve, as taught by Burns.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Burns.

Burns discloses a method comprising the steps of:

(a) providing a fluid passage (inherently, connected to valve 109) openable by operation of an actuator operating type valve (109) provided on the fluid passage of a pipe passage, wherein the fluid passage has a nearly constant pressure (i.e., constant or non-constant) inside the pipe passage (when the valve is closed, for example);

(b) moving a valve body (inherent to every valve) of the actuator operating type valve from a state of full closing toward a direction of valve opening to a first degree of valve opening by increasing or decreasing driving input to an actuator of the actuator operating type valve (see col. 28 lines 9-23, specifically lines 10-12 and the "ten step" process), wherein the driving input is increased or reduced to a first prescribed set value (that which corresponds to the step size);

(c) holding the driving input to the actuator at the first set value for a first period of time (the time between steps); and then

(d) further increasing or decreasing the driving input to move the valve body from the first degree of valve opening to a state of full valve opening (see col. 28 lines 9-12) so the fluid passage is opened without causing a water hammer.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burns.

Regarding claim 2, Burns contemplates his diagnostic method to be performed with valves and actuators that are known in the art (col. 18, lines 105 and col. 29 lines 28-45), but does not list every known type of valve and actuator, and therefore does not explicitly disclose the type claimed. However, normally closed pneumatically operated diaphragm valves were well-known in the art at the time of invention and it would have been obvious to perform Burns' method on such a valve and actuator in order to diagnose their operation.

Regarding claim 3, Burns discloses a pressure rise value of the fluid passage to be made to be within 10% of a first steady-state pressure value (alternatively it would have been obvious to perform this method in a system where the supply pressure is relatively constant, since this characteristic is common to most water supply systems) before the valve is made to open (which is proportional to the step size of, for example 1%, see col. 28 line 11). Burns also discloses the first period of time to be dependent on the size and response time of the valve and actuator (col. 30, lines 11-15), and that the method

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can be performed on many sizes and types of valves and actuators (col. 29, lines 28-45). It would have been obvious to one of ordinary skill in the art at the time of invention to perform Burns' method on a valve and actuator having a short response time, such that the first period of time is less than 1 second, in order to diagnose the operational characteristics of such a valve and actuator

Allowable Subject Matter

9. Claims 10-12 and 15-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. §112, 2nd paragraph, as set forth above.

10. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach the step of comparing a vibration signal to a two-step actuator pressure signal in combination with the other recited steps and structure.

Response to Arguments

11. Applicant's following arguments filed 3/17/2009 have been fully considered but they are not persuasive.

- a. Regarding the arguments directed to the §112, 2nd para. rejection of claims 18 and 19, see the rejection above.
- b. Applicant argues that Burn's does not disclose or suggest avoiding water hammer (Remarks, pp. 17-18), because Applicant's two step process needs to be carefully adjusted to avoid water hammer (Remarks, p. 20).

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- i. In response, water hammer (more generally “fluid hammer”) is generally understood to be caused by a pressure surge resulting when a fluid in motion accelerates *suddenly*. For example, when a pipe is opened upstream of an outlet, the suddenly moving mass of water impacts the pipes and causes shock waves to propagate therethrough. As such, “water hammer” is a term of degree, since these physical effects will occur to a greater or lesser extent if fluid flow in a pipeline is accelerated at any rate.
 - ii. Because Burns’ valve opening occurs in a step-wise fashion (see col. 28 lines 9-23, specifically lines 10-12, describing method step 304), the flow rate through his valve is increased before complete valve opening. Burns’ method therefore “avoids water hammer” of a degree that would have occurred if the flow rate had not been partially increased before complete valve opening.
 - c. Applicant argues that Burns’ method does not occur in a step-wise fashion with a Δt (Remarks, p. 18). In response, see Burns’ FIG 10A (not FIG 10C, Applicant points to). The Δt corresponds to the “landing” portion of the steps.
 - d. Applicant argues that Burns does not disclose “full closing” and “full opening” (Remarks, p. 19). In response, see Burns, col. 28 lines 10-12.
12. Applicant's arguments with respect to obviousness type double patenting rejection over US 7,278,437 have been considered but are moot in view of the terminal

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disclaimer. However, the amended claims are now obvious, under the double-patenting analysis, over the most recent amendments to the claims in co-pending application 11/762,987, as set forth in the double-patenting rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM MCCALISTER whose telephone number is (571)270-1869. The examiner can normally be reached on Monday through Friday, 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM MCCALISTER/
Examiner, Art Unit 3753

/Stephen M. Hepperle/
Primary Examiner, Art Unit 3753

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4/25/2009